



## Support, Information and a Voice for the Type 1 Community

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### Greetings!

Happy New Year and welcome to the first edition of Yada Yada for 2014.

The new year brings changes to the T1DN leadership team as we welcome a new president and committee members, and farewell two valued colleagues.

In the articles in this Yada, we look at some of the futuristic technologies that could one day make type 1 management easier - contact lenses that measure sugar levels and some innovative insulin delivery methods.

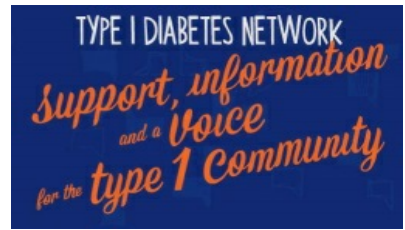
We also profile Kris Freeman, a US cross-country skier with T1 who is heading to his 4th Olympics and shows inspiring dedication, physical endurance and mental toughness.

Enjoy!



**T1DN leadership team**

In the midst of preparations for the World Diabetes Congress we found time to squeeze in the 2013 T1DN AGM. Natasha Reddrop presented the president's report, which highlighted a successful year



including the launch of our [new website](#) and updated Starter Kit, an increased social media presence, and our stand and reporting team at the World Diabetes Congress.

Natasha stepped down as president after three years on the leadership team including two as president. We can't thank Natasha enough for all her invaluable hard work steering the organisation over that time! In particular, she was the driving force behind our very well-received ['Living with Type 1 Diabetes' e-learning module](#).

We're really pleased that Niall Perry has taken on the president's role after a year as VP. He'll get plenty of help and support from our committee, which has a number of changes for 2014. We say farewell to Tony Bernauer and Chris Collett. We owe a great depth of gratitude to Tony for being the 'IT guy' for many years, keeping the forums and website running. Chris drove our private health insurance (PHI) project, which culminated with a meeting with the PHI Ombudsman and input into the 'Insulin Pumps' fact sheet. Thank you Tony and Chris; you'll both be missed!

Natasha, Kerry Vinall and Vashti Biffanti remain on committee, and we're happy to have Jenny Cox back. We welcome Kait Woods, Dave Neilson and Matt Cameron, who have all been involved informally over the past 12 months.

Are you interested in volunteering with T1DN? We always welcome new people on board, drop a line to [info@t1dn.org.au](mailto:info@t1dn.org.au) and we'll have a chat about what you could do.

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## Glucose meter in a contact lens

From the "we're living in the future" category comes a new smart contact lens that includes a glucose sensor. It's been known for some time that the glucose level in tears correlates with blood glucose, but at least [one previous attempt](#) we found at exploiting this was abandoned due to cost.

Now Google have entered the market, [reporting in a recent blog](#) the development of a sensor that measures the glucose in tears once per second and transmits the results wirelessly to a separate device. This would allow users to constantly monitor blood glucose trends without the invasiveness and hassle of a CGMS.



Courtesy: Google

The gold sensor and transmitter sit outside the pupil and iris, so they aren't visible to the wearer. However, Google are considering incorporating LEDs that would flash to warn of low blood sugar or rapidly rising or falling levels.

Google will need to overcome several barriers, including cost, before consumers get their hands on these, but the underlying technology is fascinating and seems solid, and with Google's resources behind it, we're hoping this is something we get to try out in the not too distant future.

The lenses were made in the same lab as Google's driverless car and Google glasses - must be an interesting place to work!

**T1D cross-country skier going to 4th Olympics**

US cross-country skier Kris Freeman is off to his 4th Winter Olympics in Sochi. Kris was diagnosed with type 1 at age 19 and was told that his dreams of competing in the arduous endurance sport were over. Two years later, he showed how wrong that doctor was when he represented his country at his first Olympics in Salt Lake City.

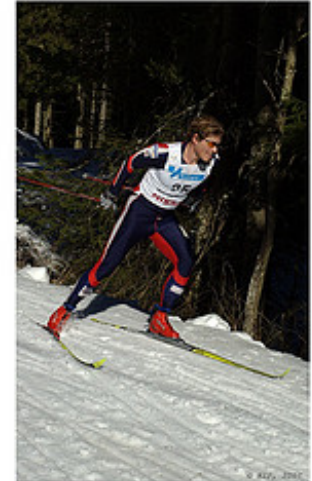


Photo by kipdev

With 16 national championships, Kris has dominated US cross-country skiing, but it hasn't been all plain sailing. During the 30 km race at the 2010 Vancouver Olympics, Kris had a hypo and collapsed while only 11 seconds from the lead. After getting a sports drink from a spectator, he managed to finish the race in 45th, but is hoping for a top 10 spot and potential medal this time.

Cross-country skiing is a gruelling endurance sport, with top-level competitors known to be among the fittest people in the world. Kris's ability to remain at the elite level for so long while dealing with T1 is inspiring and has been getting well deserved media coverage with articles in [Sports Illustrated](#) and on [ESPN](#), and an interview with [Parade.com](#).

Kris blogs about training, racing and handling fluctuating blood sugars at his website [krisfreeman.net](http://krisfreeman.net) and is [@TeamFreebirdXC](#) on Twitter.

**New ways to deliver insulin**

A [team at De Montfort University](#) has reported that after 20 years of research they have a prototype that could function as an artificial pancreas.

The device is surgically implanted under the skin and has a reservoir of insulin kept in place by a barrier made of a remarkable gel. As BGLs rise, the gel liquefies to increase the supply of insulin; the gel then solidifies as sugar levels fall, stopping insulin release.



De Montfort University

Insulin is refilled through a small tube, but this only needs to be done every couple of weeks. The device is about 6 cm in diameter and is expected to cost about £5000 (around \$10,000), which is not too much more than current insulin pumps.

The researchers hope to run human trials in 2016 and have the device as part of the UK subsidised health system within 10 years, but refinements and more funding are still needed. Lead researcher Professor Joan Taylor discusses the impressive research in this [YouTube video](#).

In different research, a team at North Carolina State University led by Professor Zhen Gu have developed an insulin delivery method that's almost from the realms of science fiction.

They have created an [injectable nanoscale network](#) that releases specific, appropriate amounts of insulin dependent on glucose levels. The network has already been able to keep the BGLs of type 1 diabetic mice stable for more than a week.

In the network, a core of particles, filled with insulin and glucose-specific enzymes, cling together under the skin. Higher glucose levels in the blood break down some of the particles, which releases more insulin. As sugar levels drop, the particles cling together again and slow the insulin release. Researchers are currently optimising their technique in the hopes of getting it to respond as quickly as a healthy pancreas.

Having weeks worth of insulin stored under the skin sounds a little bit freaky to us, but on the plus side, if it works safely it could mean much easier blood glucose management with much less frequent injections.

**Meet-ups and events**

## Type 1 Diabetes Capricorn Connection (T1DCC) event

T1DCC invites all adults living with type 1 diabetes and their family and friends to attend their next meeting in Rockhampton on Saturday 1 February.

This month Sara Pop, Dementia Adviser from Ozcare, will speak on the association between dementia and diabetes. For more information check out the [Reality Check thread](#).

### Quick links

Hot topics on the Reality Check online forum include:

- [Which pump?](#)
- [Volunteering for emergency services with diabetes?](#)
- [Strip comparison](#)
- [Pump replacement procedure?](#)
- [Storing supplies while running?](#)

Thanks for reading, and don't forget you can always send us your feedback and comments by replying to this email. We'll see you next time!

***From everyone at  
The Type 1 Diabetes Network***

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